

CLAIMS

What is claimed:

1. An integrated circuit package for housing an integrated imaging die, said package providing a reference plane in relation to an image plane of said die, said package comprising:
a transparent window, a window standoff with an internal plane acting as said reference image plane and an external plane acting as reference positioning plane for said package when interfacing with an external optical device, a substrate on which the said imager die is mounted, said package is designed to accommodate an imager die that is bigger than said window, whereby the active imaging area of the imager die is as big as the external device allows (determined by the shutter rectangular opening in the case of a 35 mm camera) and providing an interconnection area between said die and the package that is outside the imaging area.
2. A package of claim 1 further having the substrate designed as a single or multi layer electrically conductive circuitry and having said imager die electrically connected to it.
3. A package of claim 2 further comprising an area where the traces extend beyond the window standoff dimensions to form a group of pads for connecting the imager to external circuitry.
4. A package of claim 2 further comprising additional dies that are mounted on the said substrate in the said interconnection area to form a MCM (Multi Chip Module) device.
5. A package of claim 1 that when designed for 35 mm cameras provides a thicker interconnection area than the rest of the package taking advantage of the fact that

there is a recess in 35 mm cameras between the film rails. Said thicker area allows for electrical interconnection methods that require some height above the image plane of the die (such as wire bonding). It also allows for thicker dies as described in claim 4.

6. An integrated circuit package housing an electronic imager die for use in a conventional SLR camera comprising:
 - a substrate adapted so as to be received upon the film rail of said camera and containing at least one layer of electrically conductive circuitry, said substrate including an electronic imager with an active surface and an interconnect area, said active surface substantially equal to the focal image plane of said camera, means for electrically connecting said electronic imager to said conductive circuitry outside of said focal image plane.
7. An integrated circuit package for housing an electronic imager die for use in a conventional camera comprising:
 - a substrate containing at least one layer of electrically conductive circuitry, said substrate having a first projection and a second projection, said substrate adapted so as to be received upon a film rail;
 - an electronic imager die having an active surface substantially equal to the focal image plane of said camera and including an interconnect area and an inactive side, said inactive side bonded to said substrate, said interconnect area electrically connected at least one location to said conductive circuitry;
 - a frame adapted so as to be received within the shutter curtain aperture of said camera and within the film rail volume of said camera and bonded to said substrate, said frame having an inwardly depending lip and including an interconnect channel; wherein said interconnect area is received by said lip and protrudes into said interconnect channel;
 - a transparent window mounted on said frame and overlying said electronic imager die.

7. The integrated circuit package of claim 7 wherein said frame includes at least one reference plane surface.
8. The integrated circuit package of claim 7 wherein said frame is made from an optically transparent material.
9. The integrated circuit package of claim 7 wherein said window includes a chamfer about its perimeter.
10. A window frame for receiving an integrated circuit die comprised of:
a frame with a top surface and an bottom surface, said top surface having an integral inwardly depending lip about its interior perimeter, said bottom surface including an interconnect channel about its interior perimeter.
11. The frame of claim 10 wherein said frame is adapted so as to be received by the shutter curtain aperture of a camera.